

Total Movements of the Air.—The following are the *largest* total movements recorded in miles at the Signal Service stations during the month: Delaware Breakwater, 13,730 miles; Cape May, 13,029; Wood's Holl, Mass., 12,987; Sandy Hook, 12,276; Thatcher's Island, Mass., 11,929; Cape Lookout, N. C., 10,668; Kittyhawk, N. C., 10,664; North Platte, 10,620; Cape Henry, 10,443; Indianola, Tex., 10,264; Breckenridge, Minn., 10,354; Barnegat, N. J., 10,134; Milwaukee, 9,965; Cheyenne, 9,894; Grand Haven, 9,793; Cape Hatteras, 9,757; Port Huron, 9,258; Erie, 9,069; Newport, 8,893. The *smallest* are: Stockton, Tex., 1,259 miles; Roseburg, Oregon, 2,055; Nashville, 2,105; Visalia, Cal., 2,151; La Mesilla, N. M., 2,181; Uvalde, Tex., 2,411; Santa Fé, 2,608; Deadwood, Dak., 2,634; Lynchburg, Va., 2,695; Augusta, Ga., 2,770; San Antonio, Tex., 3,343; Salt Lake City, 3,392; Portland, Or., 3,451; Olympia, Wash. Ter., 3,458; Silver City, N. M., 3,562; Boise City, Idaho, 3,602; Los Angeles, Cal., 3,700.

Local Storms.—Pilot Point, Tex., 24th, very severe wind storm, attaining a velocity of W. 59 miles, causing considerable damage to trees and fencing. Cincinnati, 18th, severe whirlwind of small diameter passed near the southern railway bridge, destroying considerable property. Nashville, 12th, during the progress of the heavy wind and rain storm, between the hours of 10 and 11 p. m., two small tornadoes were formed within the limits of the city; passing over it from SW. to NE., causing a large of destruction to property. The average width between the paths of the two storms was $1\frac{1}{2}$ miles, and over the central portion for a constant width of a $\frac{1}{2}$ mile no damage was done. The northern tornado commenced its work of destruction at a point about two miles southwest of the signal office, and passed to the northeast a distance of three or four miles, where all trace of the whirlwind's action disappeared. Property to the value of about \$30,000 was all destroyed in its path. Trees from $1\frac{1}{2}$ to 2 feet in diameter were uprooted or twisted off, and the debris carried in the direction of the whirl, which was from right to left. The southern tornado descended near Hillsboro Pike, where a small barn was first demolished, it then rose, passing entirely over several houses without injury, reaching the earth again in a short interval it moved to the Custom House, which it damaged to the amount of \$8,000; heavy blocks of stone weighing several tons were thrown from the walls, and the whole of one side torn down. After unroofing several buildings and destroying the spire of St. Pauls church the whirlwind disappeared. In the tracks of both tornadoes, the peculiar bounding action of the whirling cloud was easily discernable.

Sand Storms.—Umatilla, Or., 12th, 14th; Stockton, Tex., 12th, 24th; Ft. Garland, Col., 16th, 17th.

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily indications for February, with the telegraphic reports for the succeeding twenty-four hours, shows the general percentage of verifications to be 88.0 per cent. The percentages for the four elements are: Weather, 90.0; Direction of the Wind, 86.3; Temperature, 88.2; Barometer, 87.5 per cent. By geographical districts they are: for New England, 88.3; Middle States, 92.2; South Atlantic States, 86.7; Eastern Gulf States, 88.8; Western Gulf States, 87.9; Lower Lake region, 90.2; Upper Lake region, 88.7; Tennessee and the Ohio valley, 87.2; Upper Mississippi valley, 84.0; Lower Missouri valley, 85.3; Northern Pacific region, 92.6; Central Pacific coast region, 93.1; Southern Pacific coast region, 92.9. There were 10 omissions to predict out of 3,567, or 0.28 per cent. Of the 3,557 predictions that have been made, 139, or 3.65 per cent, are considered to have entirely failed; 89, or 2.50 per cent, were one-fourth verified; 385, or 10.83 per cent, were one-half verified; 145, or 4.08 per cent, were three-fourths verified; 2,808, or 78.94 per cent, were fully verified, so far as can be ascertained from the tri-daily weather maps.

Cautionary Signals.—166 Cautionary Signals were displayed during the month, of which 156, or 94.0 per cent., were justified by winds of 25 miles per hour or over at, or within a radius of 100 miles of the station. 107 Off-shore Signals were displayed, of which 98, or 91.6 per cent, were fully justified; 106, or 99.1 per cent, were justified as to direction; 98, or 91.6 per cent as to velocity; and 1, or 0.9 per cent, were not justified either as to direction or velocity. 65 of the Off-shore were changed from Cautionary. 273 Signals of both kinds were displayed, of which 254, or 93.0 per cent, were fully justified. The above does not include signals ordered for 50 display stations, where the velocity is only estimated. 51 cases of winds of 25 miles and over per hour, from scattering stations, were reported, and for which signals had not been ordered.

NAVIGATION.

In the table on the right-hand side of chart No. III are given the highest and lowest readings of the Signal Service river-gauges for the month, with the dates of the same. The *Missouri* remained frozen over at Yankton until the 24th, when observations were resumed; at Omaha and Leavenworth the variation in the height of water has not exceeded 4 feet during the whole month. The *Mississippi* continued frozen at St. Paul and La Crosse throughout the month; thence southward to St. Louis the range at any station did not reach 4 feet for the entire month; at Cairo the river fell slowly from the 1st to the 11th; on the 13th it commenced to rise rapidly, and by the 24th had risen to 43 ft. 5 in., or 3 ft. 5 in. above the danger-line, after which it fell slowly to the end of the month, reaching 41 ft. 10 in. on the 29th; at Memphis it fell slowly from the 1st to 12th, after which it rose to the end of the month, when it was within 8 in. of danger-line; at Vicksburg it was within 1 ft. of danger-line (41 ft.) on the 1st, but continued slowly falling until the 17th, when it reached 27 ft. 3 in.; on the 18th it commenced rising, and at the end of the month